

NOTES ON LANCELETS AND LAMPREYS.

BY HENRY W. FOWLER.

The species listed below are all contained in the collection of The Academy of Natural Sciences of Philadelphia.

BRANCHIOSTOMIDÆ.

Branchiostoma lanceolatum (Pallas).

Mediterranean (Dr. H. E. Evarts); Bay of Naples (Dr. Benjamin Sharp, Dr. H. C. Chapman); Italy (Bonaparte Coll., No. ⁴²¹_c).

Branchiostoma caribæum Sundevall.

Off Vieques, Porto Rico (U. S. F. C.).

Branchiostoma californiensis Andrews.

Los Angeles Bay, Cal. (W. N. Lockington).

Epigonichthys leucayanum (Andrews).

Entrance to Castle Harbor, Bermuda Islands (A. G. Gulick).

EPTATRETIDÆ.

Polistotrema stoutii (Lockington).

Pacific Groove on Monterey Bay, Cal. (Dr. Harold Heath).

Gill-openings 11 on both sides in 2 examples, 12 on both sides in 3, and 12 on the right side and 3 on the left also in 3.

Polistotrema polytrema (Girard).

Chili (Dr. H. C. Chapman).

Eptatretus burgeri (Girard).

Off Misaki, Japan (D. S. Jordan and J. O. Snyder).

MYXINIDÆ.

Myxine glutinosa Linnæus.

Lat. 39° 55' 31" N., Long. 70° 39' N., and Bar Harbor, Maine (Dr. H. C. Chapman).

PETROMYZONIDÆ.

OCEANOMYZON gen. nov.

Type *Oceanomyzon wilsoni* sp. nov.

Supraoral lamina not especially contracted, its 2 converging teeth well separated and distinct. Infraoral lamina crescentiform and

spout-like at middle, with denticles obsolete. Innermost teeth of disk, or those along each side of orifice, bicuspid, large, and similar to those on supraoral lamina.

Differs from both *Bathymyzon* and *Petromyzon* in the above combination of characters. One species in the open Atlantic, possibly occurring at some depth.

(Ὠκεῖανος, ocean; μύζω, to suck.)

Oceanomyzon wilsoni sp. nov. Fig. 1.

Head to first gill-opening $6\frac{2}{3}$; depth $13\frac{1}{3}$; width of head at first gill-opening about 2 in its length; snout $1\frac{1}{2}$; width of disk $1\frac{9}{10}$; inter-orbital space $2\frac{1}{7}$; height of first dorsal $6\frac{1}{8}$; height of second dorsal 3;

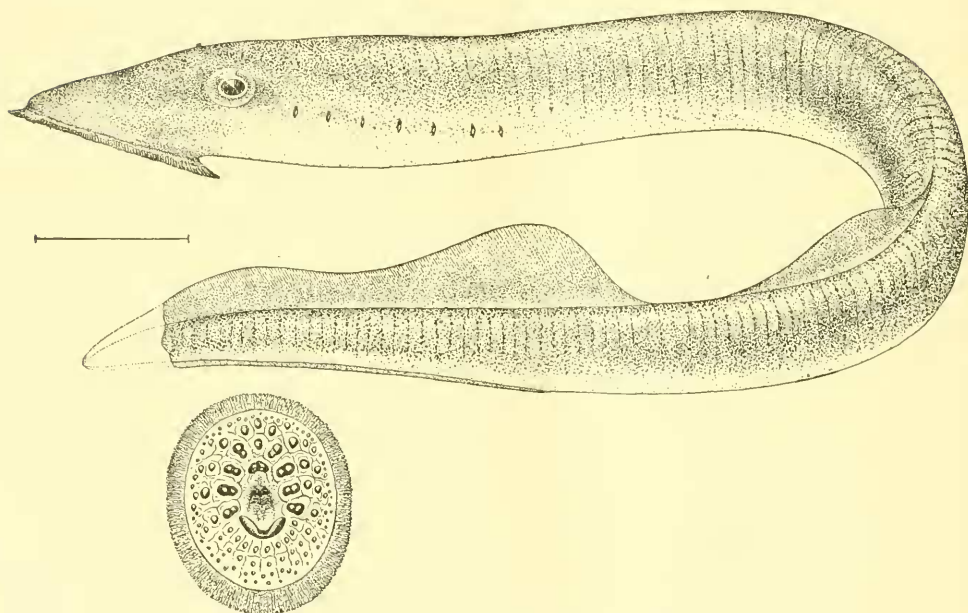


Fig. 1.—*Oceanomyzon wilsoni* Fowler. (Type.)

eye 3 in interorbital space; tail measured from vent to end of caudal fin (damaged) about 3 in rest of body.

Body well compressed, rather slender, flexible, tapering backwards from pharynx, with greatest depth a little after last gill-opening. A median broad obsolete ridge down back from about opposite first gill-opening to first dorsal. Lower surface of body rounded convexly. About 72 muscular bands between last gill-opening and vent. Tail

from vent compressed, tapering but little and ending in an abrupt tip (damaged).

Head rather large, broad, and rather depressed more or less both above and below. Snout broad, its surface convex, and longer than broad by about an eye-diameter. Eye rather large, lateral, without lids, or covered by skin of head, a little longer than deep, and placed in last fourth of head measured to first gill-opening. Mouth large, rounded to rather an ellipsoid shape, and its width thus about $1\frac{1}{2}$ in its length. Disk thus formed furnished with a fringe of short fleshy tentacles, posterior of which are much longest and edges of each all armed with short fringes. Longest of these posterior flaps about half of horizontal orbital diameter. Surface of disk studded with rather numerous teeth, much smaller and more or less imbedded in outer series. Anterior and on inner sides teeth large and all more or less arranged in concentric radiating series. Inner enlarged teeth on each side as 4 bicuspid and a single antero-median bicuspid. Cusps of all these about similarly developed. Posterior inner dental crescent with its margin converging to a small narrow median trenchant edge, where there are 7 small blunt obsolete closely crowded cusp-like points, so as to appear spout-like. Anterior lingual tooth with a deep median groove, terminating in an incurved point and with 7 serratures right and 6 left. Posterior lingual teeth consisting of two U-shaped patches of teeth with about a dozen serratures in each. Nostril with a slightly elevated cutaneous rim and placed midway in interorbital space opposite front rim of eye. Interorbital space broadly convex.

Gill-openings 7 on each side of pharynx a trifle inferiorly, and anterior nearer posterior than tip of snout by about half length of latter. Gill-openings becoming a trifle larger as they progress posteriorly and about equally far apart.

Skin smooth, rather soft and thin. No evident mucous pores.

Origin of first dorsal about midway between tip of caudal (evidently damaged) and first gill-opening, reaching its greatest height about first $\frac{2}{3}$ in its length and margin rounded. Second dorsal distinct from first, not connected basally, and inserted a trifle before last fourth in entire length of body, and its greatest height apparently a little after vent. Caudal apparently damaged and then healed. After vent a low thin median cutaneous ridge extending back and apparently joining lower caudal lobe. Vent with a small papilla.

Color in alcohol plumbeous-brown above, more or less uniform, and shading off on sides to paler or grayish-white, and lower surface all

more or less entirely whitish with slight leaden or grayish tints. Lower surface of tail only narrowly pale. Dorsals and caudal pale brownish. Disk pale brownish and teeth all dark or wood-brown. Iris pale slaty.

Length $12\frac{1}{4}$ inches.

Type No. 375, A. N. S. P. Atlantic Ocean. Dr. T. B. Wilson.

This is the only example I have seen. It is apparently related to *Petromyzon* (*Bathymyzon*) *bairdii* Gill, *Proc. U. S. Nat. Mus.*, 1883, p. 254, but differs, according to the account by Goode and Bean, *Ocean. Ichth.*, 1895, p. 4, in several characters. In *B. bairdii* the tips of the two supraoral teeth are said to be barely perceptible, while in the present species they are equally as well developed as either of the adjacent bicusps. In *B. bairdii* the eye is said to equal a fourth of the interorbital space, while in the present species it is about a third. These differences hardly seem due to age, as the type of *B. bairdii* and the present species differ in length by only $1\frac{1}{4}$ inches. *Oceanomyzon* will then appear as an annectant form between the true lampreys, or *Petromyzon*, and the bassalian *Bathymyzon*.

(Named for Dr. Thomas B. Wilson, for many years a generous patron of the Academy. Among his numerous gifts may be found much valuable material in the collections of fishes.)

Petromyzon marinus Linnæus.

Italy (Bonaparte Coll.); Boston, Mass. (J. H. Slack); Fannel's Branch near Chestertown in Kent Co. (E. G. Vanatta), and Bacon Hill in Cecil Co., Md. (H. W. Fowler).

Petromyzon marinus unicolor (De Kay).

Cayuga Lake Inlet, N. Y. (S. E. Meek).

Ichthyomyzon concolor (Kirtland).

Two examples without data, and one from the Clinch River in Tennessee (E. D. Cope).

Ichthyomyzon castaneus Girard.

Kiskiminitas River, Pa. (E. D. Cope). I wrongly identified this example in *Am. Nat.*, 1907, p. 6, as *Lampetra wilderi*. The species is therefore now known for the first time in Pennsylvania.

Entosphenus tridentatus (Richardson).

Willamette Valley, Ore. (O. B. Johnson).

Lampetra fluviatilis (Linnæus).

Italy (Bonaparte Coll.); Europe (Smiths. Inst.).

Lampetra cibaria (Girard).

San Francisco Market, Cal. (W. N. Lockington).

Lampetra æpytera (Abbott). Fig. 2.

Ammocetes æpytera Abbott, Proc. Acad. Nat. Sci. Phila., 1860, p. 327. No. 354, type. Ohio River. Dr. Hildreth.

Width of head about $2\frac{1}{8}$ in its length, measured to first gill-opening; width of disk $2\frac{2}{3}$; interorbital space 3; eye about 2 in interorbital space. Body well compressed and edges rather convexly rounded, without distinct keels medianly. Muscular bands along side of body distinct, of about even width, and about 53 between last gill-opening and vent. Tail well compressed. Head subcylindrical, soon becoming compressed at pharynx. Snout broadly convex, its width about $1\frac{1}{3}$ in its length. Mouth moderately large, disk-like, rounded and circular. Edges of disk thus formed rather thick, fleshy, and with a fringe of

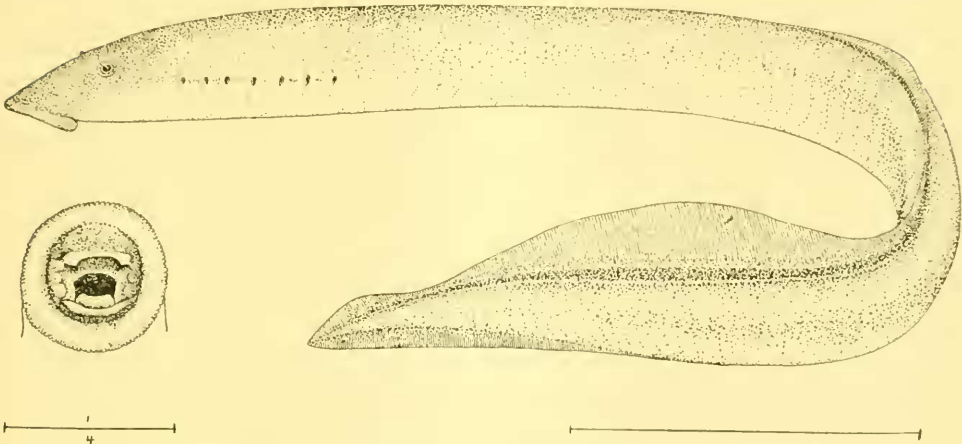


Fig. 2.—*Lampetra æpytera* (Abbott). (Type of *Ammocetes æpytera* Abbott.)

short and rather inconspicuous fleshy flaps. Teeth few, strong and rather large. If outer teeth occur over surface of disk they are minute, imbedded more or less, or deciduous, as no traces seem evident now. Inner teeth well developed on each side as 3 large cusps, and medianly above apparently as 2 smaller cusps. Posteriorly teeth form a hard crescentic keel, apparently entire. Tongue apparently toothless, with a median groove separating fleshy margin on either side. Interorbital space rather narrowly convex. Skin thin, firm, not very tough, and without evident mucous pores. Color faded in alcohol uniform dull brown above and becoming a little paler on under surface. Fins pale brownish, much paler than belly. Eye dull slaty. Length $4\frac{7}{8}$ inches. Type of *Ammocetes æpytera* Abbott.

In Proc. Acad. Nat. Sci. Phila., 1901, p. 328, following the previous

identifications of authors, I was led to erroneously identify this specimen with *Ammocetes concolor* Kirtland, a species with which it most certainly is not to be identified. It is in fact entirely identical with *Lampetra wilderi* Gage, in Jordan and Evermann, *Bull. U. S. Nat. Mus.*, No. 47, I, 1896, p. 13. This will necessitate the suppression of the latter name and thus the small black lamprey now becomes *Lampetra aphytera*.

Grosse Isle and Ann Arbor, Mich. (E. D. Cope); Cedar Rapids, Ia. (S. E. Meek) and Brook River (Charles Aldrichs), Ia.

Lampetra branchiale (Linnæus).

Italy (Bonaparte Coll.).